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MEMORANDUM

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Executive Summary

Acute and chronic dietary risk assessments were conducted to evaluate exposure from food residues of the insecticide fipronil using the version 2.03 Dietary Exposure Evaluation Model (DEEM-FCID™). It uses food consumption data from the U.S. Department of Agriculture's Continuing Surveys of Food Intakes by Individuals (CSFII) from 1994-1996 and 1998 to calculate dietary risk. These analyses were performed in support of petition PP#8E7480 submitted to change the tolerance for fipronil on rice into that of an import regulatory level. It is being put forward because the registrant will no longer maintain the United States registration of fipronil on rice but will continue to support this use overseas. This assessment is made using field trial data for rice compiled from several studies conducted abroad and includes all food uses as well as current drinking water estimates.

Acute Dietary Exposure Results and Characterization

The acute dietary risk assessment which was made is a conservative evaluation based exclusively on tolerance level residues and 100 % crop treated assumptions. DEEM 7.81 processing factors were utilized for the applicable commodities to reflect the possible altering of residue levels through the manufacture of other food forms such as dried fruits and juices. For all other commodities in this assessment, the default adjustment factor of 1.0 was used to weight the processing affects of alternate food forms. An acute drinking water estimate of 0.002654 ppm was incorporated into this evaluation determined by adding the one in ten year peak concentrations for fipronil and its degradation products.

The acute dietary assessments using the DEEM-FCID™ model were reported at the 95th percentile of exposure for the general U.S. population and all of its subgroups. Risk estimates were found to be all well below the 100% acute Population Adjusted Dose (aPAD) threshold level of concern. Fipronil acute dietary exposure was estimated to be 0.002389 mg/kg/day at 9.6% of the aPAD for the general U.S. population. In comparison, acute dietary exposure for the most highly exposed population subgroup, children 1-2 years of age, was estimated to be 0.006209 mg/kg/day at 25% of the aPAD.

Chronic Dietary Exposure Results and Characterization

Previous unrefined chronic dietary assessments made for fipronil have been found to exceed the 100% chronic Population Adjusted Dose (cPAD) threshold level of concern (DP No. D329350, B. Hanson, 06/19/2007). As such, the current chronic dietary assessment was refined based on anticipated residue levels and percent Crop Treated (%CT) information. DEEM 7.81 processing factors were likewise utilized for those applicable food forms pertinent to this assessment and the default adjustment factor of 1.0 was used to weight the effects for all others. Similarly, a chronic drinking water estimate of 0.000318 ppm was incorporated into this evaluation determined by adding the one in ten year average concentrations for fipronil and its degradation products.

Chronic risk estimates were all found to be well below the 100% cPAD threshold level of concern for the refined analyses that were carried out in part for this evaluation. Fipronil chronic dietary exposure was estimated to be 0.000073 mg/kg/day at 36% of the cPAD for the general U.S. population. In comparison, chronic dietary exposure for the most highly exposed population subgroup, children 1-2 years of age, was estimated to be 0.000190 mg/kg/day at 95% of the cPAD. To gain a better understanding of fipronil chronic dietary exposure, a critical commodity contribution analysis was conducted for children 1-2 years of age. This analysis has shown dairy products, meat, and cereal grains to be the chronic dietary risk drivers of fipronil comprising 43%, 14% and 11% of the total exposure respectively.

Cancer Dietary Exposure Results and Characterization

An evaluation made by the HED Carcinogenicity Peer Review Committee (CPRC) has concluded that fipronil should be classified as a Group C possible human carcinogen (CPRC Report Memorandum TXR No. 0011616, V. Dobozy, 07/18/1995). The HED CPRC assessment also recommended that Reference Dose (RfD) methodology could be used for the estimation of human risk. Following this approach a further evaluation of fipronil was made by the HED Hazard Identification Assessment Review Committee (HIARC). The HED HIARC determined that dietary risk concerns from the long-term consumption of fipronil residues could be adequately addressed in chronic dietary exposure analyses using the RfD (HIARC Report Memorandum 012607, J. Rowland, 05/07/1998). Therefore, a separate assessment of cancer risk using the DEEM-FCID™ modeling software is not necessary.

I. Introduction

Dietary risk assessment incorporates both exposure and toxicity of a given pesticide. For acute and chronic assessments, the risk is expressed as a percentage of a maximum acceptable dose (i.e., the dose which HED has concluded will result in no unreasonable adverse health effects). This dose is referred to as the population adjusted dose (PAD). The PAD is equivalent to the Reference Dose (RfD) divided by the special Food Quality Protection Act (FQPA) Safety Factor.

For acute and non-cancer chronic exposures, HED is concerned when estimated dietary risk exceeds 100% of the PAD. References which discuss the acute and chronic risk assessments in more detail are available on the EPA/pesticides web site: "Available Information on Assessing Exposure from Pesticides, A User's Guide," 6/21/2000, web link: <http://www.epa.gov/fedrgstr/EPA-PEST/2000/July/Day-12/6061.pdf>; or see SOP 99.6 (8/20/99).

II. Residue Information

Fipronil is a broad-spectrum pyrazole class insecticide currently registered for use to the BASF Corporation. The qualitative nature of the residue in both plants and livestock for fipronil is considered to be sufficiently understood. For these matrices, the residues of concern for tolerance expression and dietary risk assessment were determined by the HED Metabolism Committee to be parent along with the MB45950 and MB46136 metabolites (DP No. D236164, R. Loranger, 05/28/1997). It was also concluded that residue data for the MB46513 photo-degradate will be required for crops with metabolism studies indicating this constituent comprises a significant portion of the total radioactive residue (rice, potatoes, and rotational crops). Permanent tolerances for residues of fipronil which include its MB45950 and MB46136 metabolites as well as the MB46513 photo-degradate are established under 40 CFR180.517 for a number of crop and livestock commodities. The residues of concern for tolerance expression and risk assessment of rice commodities are therefore parent, MB45950, MB46136, and MB46513. Although BASF has indicated that it will no longer maintain the registration of fipronil on rice in the United States, it will however continue to support this use overseas. In doing so, the BASF Corporation has submitted a petition requesting to change the tolerance for fipronil on rice into that of an import regulatory level.

To support the establishment of an import tolerance on rice, the data from several crop field trial studies were provided for determining the magnitude of residue in this commodity (DP No. D368740, W. H. Donovan, 08/25/2009). These studies are provided to demonstrate a "worse-case" use pattern of applications made to rice compiled from fipronil field trials undertaken in several countries abroad. There are currently four (4) fipronil end-use products supported by the registrant utilized for the cultivation of rice in Australia, Japan, and Brazil. The use patterns followed in both Australia and Japan include seed treatment or box seedling application made prior to crop planting. Pre-plant seed treatments as well as post-emergence spray application are the uses on rice which are currently being maintained in Brazil. As such, the submitted crop field trial results (parent + 3 metabolites) support the retention of the 0.04 ppm domestic tolerance established for fipronil residues of concern in/on rice grain as being an appropriate import regulatory level. In conjunction, the 0.10 ppm tolerance for rice straw should therefore be removed or revoked since the registration of rice will no longer be carried in the United States and its straw is not a significant import commodity. The previous dietary assessment made to support the use of fipronil on onion seed, shallot seed, and the tuberous and corm vegetable crop group was therefore used as the basis for constructing the current model (DP No. D329350, B. Hanson, 06/19/2007). The tolerance levels for fipronil in/on rice proposed by the BASF Corporation along with those recommended by the Agency are summarized in Table 1 as follows:

Table 1. Tolerance Summary for Fipronil				
Commodity	Established Tolerance (ppm)	Proposed Import Tolerance (ppm)	Recommended Import Tolerance (ppm)	Comments; <i>Correct Commodity Definition</i>
Rice, grain	0.04	0.04	0.04	No U.S. registrations
Rice, straw	0.10	None	Revoke	No U.S. registrations; not considered a significant import commodity

Residue Data used for Acute, Chronic, and/or Cancer Assessments:

The DEEM-FCID™ acute dietary analysis made for fipronil was performed as a conservative evaluation based exclusively on tolerance level residues and 100 % crop treated assumptions. It includes retention of the 0.04 ppm domestic rice grain tolerance as an adequate import regulatory level properly supported by the recent overseas crop field trial studies that were provided by the registrant. DEEM 7.81 processing factors were appropriately used to reflect the possible altering of residue levels through the manufacture of other applicable food forms. The corresponding processing factors were therefore applied accordingly to the acute fipronil dietary model except for those values specified for the dried potato commodities (flakes and potato, chips, etc.). Although the dried potato food forms are usually given a default processing factor of 6.5, residue data indicates that it is actually <1 for these commodities (DP No. D316795, B. Hanson, 08/29/2005). For all other commodities included in this assessment, the default adjustment factor of 1.0 was used to weight the processing affects of alternate food forms. An acute drinking water estimate of 0.002654 ppm was also incorporated into this assessment to reflect a possible concentration for fipronil so that this evaluation is protective of such exposures.

The DEEM-FCID™ chronic dietary analysis was performed as a refined evaluation using Anticipated Residue (AR) levels, current %CT information, and the appropriate food form processing factors. It includes a new AR level of 0.017 ppm determined for imported rice grain using residue data recently provided by the registrant compiled from fipronil field trials undertaken in several countries abroad (DP No. D368740, W. H. Donovan, 08/25/2009). For the other crop commodities used in this assessment, the relevant ARs are taken from residue data generated for crop field trial studies made to support prior fipronil actions. New fipronil screening level usage analyses were provided by BEAD for determining %CT data on corn and potato (Usage Reports from A. Grube, 07/23/2009 and 08/27/2009). The relevant %CT data on imported rice grain which would merit consideration as a result of this action were also determined by BEAD (from email, D. Brassard, 07/21/2009). For all other crops, 100%CT assumptions were used respectively for the purpose of carrying out this assessment. To provide an overview of these inputs, Table 2 summarizes the pertinent ARs and current %CT information of each plant commodity used to form the chronic dietary model for fipronil.

Table 2. Summary Crop Commodity ARs used for Chronic Fipronil Dietary Analysis

Crop Commodity	Chronic Anticipated Residue (AR) Level ¹	% Crop Treated (CT) usage for fipronil
Corn Vegetables (crop group 1C)	0.0120 ppm	100% ²
Corn Grain	0.0150 ppm ³	2.5% ⁴
Field Corn, forage	0.0360 ppm ³	2.5% ⁴
Onion (dry bulb)	0.0210 ppm	100% ³
Shallot (dry bulb)	0.0210 ppm	100% ³
Potatoes (tuber)	0.0120 ppm	43% ⁵
Potatoes (chip)	0.0048 ppm ⁶	43% ⁵
Potatoes (flake)	0.0056 ppm ⁶	43% ⁵
Potatoes (wet peel)	0.0480 ppm ⁶	43% ⁵
Rice Grain (imported)	0.0170 ppm ⁷	15% ⁸
Rutabaga	1.0000 ppm ⁹	100% ³
Sweet Potatoes	0.0120 ppm	100% ³
Turnip	1.0000 ppm ⁹	100% ³
Wheat Grain	0.0050 ppm ¹⁰	100% ³

¹ Chronic ARs for all crop commodities except corn, rice, rutabaga, turnip and wheat are based upon the corresponding mean residue crop field trial result derived in DP Nos. D313293, D318283, D319854 & D318677, M. Sahafeyan, 08/05/2005.

² Default 100% CT assumption.

³ Corn grain AR is derived from the Anticipated Residue calculations supporting the Section 18 Exemption for fipronil use in/on cottonseed in Mississippi found in DP No. D255833, S. Chun, 05/19/1999.

⁴ %CT information determined in a Usage Report Package in Support of Registration for the Insecticide Fipronil from A. H. Grube of BEAD, 07/23/2009.

⁵ %CT information determined in a Draft Usage Report/Package in Support of Registration/Reregistration for the Insecticide Fipronil from A. Grube and D. Brassard of BEAD, 08/27/2009.

⁶ Chronic AR is based upon the potato tuber mean residue crop field trial result adjusted by its corresponding processing factor (.40 for potato chips & .47 for potato flakes) derived in DP Nos. D313293, D318283, D319854 & D318677, M. Sahafeyan, 08/05/2005.

⁷ Chronic AR for imported rice grain is derived in DP No. D368740, W. H. Donovan, 08/25/2009.

⁸ %CT information determined in a usage analysis provided as an email from D. Brassard of BEAD, 07/21/2009.

⁹ %CT information determined in a Usage Report Package in Support of Registration for the Insecticide Fipronil from A. H. Grube of BEAD, 07/23/2009.

⁹ Chronic AR is the tolerance level recommended in support of the section 18 emergency exemption registration action for rutabaga and turnip derived in DP Nos. D316795, D322527 & D322529, B. Hanson, 11/07/2005.

¹⁰ Chronic AR for wheat is the tolerance level recommended to support the registration action for indirect or inadvertent residues derived in DP Nos. D313293, D318283, D319854 & D318677, M. Sahafeyan, 08/05/2005.

In regard to the animal commodities that must also be factored into this chronic dietary evaluation, ARs are similarly used for these products which are based upon the realistic diets of livestock. Following the prior fipronil dietary assessment for onion seed, shallot seed, tuber and corm vegetables, HED has since updated Table 1 (Table 1 Feedstuffs June 2008) to reflect more reasonable livestock diets. Using this update, the dietary burdens of fipronil for the pertinent animal commodities were therefore recalculated using practical livestock diets constructed according to the current guidelines (private communication, J. Stokes). The resulting Anticipated Dietary Burden (ADB) derived for livestock using current residue and %CT data for the pertinent feed items are presented below in Table 3 as follows:

Table 3. Anticipated Dietary Burden of Fipronil for Livestock¹					
Feedstuff	% of Diet	% Dry Matter	%CT	AR	Contribution to Diet ²
Beef Cattle					
Field Corn, forage	15	40	2.5	0.036 ppm	0.0003 ppm
Potato, processed waste ³	30	15	43	0.048 ppm	0.0413 ppm
Field Corn, grain	50	88	2.5	0.015 ppm	0.0002 ppm
Other ⁴	5	N/A ⁵	N/A	N/A	--
TOTAL	100	--	--	--	0.0418 ppm
Dairy Cattle					
Field Corn, forage	45	40	2.5	0.036 ppm	0.0010 ppm
Potato, processed waste	10	15	43	0.048 ppm	0.0138 ppm
Field Corn, grain	35	88	2.5	0.015 ppm	0.0001 ppm
Other	10	N/A	N/A	N/A	--
TOTAL	100	--	--	--	0.0149 ppm
Poultry					
Field Corn, forage	75	88	2.5	0.015 ppm	0.0003 ppm
Other	25	N/A	N/A	N/A	--
TOTAL	100	--	--	--	0.0003 ppm
Swine					
Field Corn, grain	85	88	2.5	0.015 ppm	0.0004 ppm
Other	15	N/A	N/A	N/A	--
TOTAL	100	--	--	--	0.0004 ppm

¹ Revision of feedstuffs in OPPTS 860.1000 Table 1 referenced as "Table 1 Feedstuffs (June 2008)".

² Contribution to Diet = [(AR x %CT) / %Dry Matter] x % of Diet.

³ Dietary analyses is performed using the potato, wet peel crop commodity.

⁴ Other is an untreated protein concentrate feedstuff.

⁵ N/A: Not applicable.

Final determination of the AR inputs for animal products are then made based upon the livestock feedstuff contributions to diet calculated in Table 3. This determination followed the prior calculation of AR inputs derived for dietary exposure analyses previously made to support the registration of fipronil on cottonseed (DP No. D271641, S. J. Levy, 02/14/2001). Using a ratio of the maximum feeding study dose and contribution to diet, the total residues observed in the tissues and products of livestock found at the maximum dosing level are normalized to 1x. In accordance, the normalized residue values derived below in Table 4 are in turn used as the chronic ARs for livestock to complete this portion of the chronic dietary assessment model.

Fipronil

Aggregate Dietary Exposure Assessment

DP No.: D368732

Table 4. Normalized Residue Levels of Fipronil for Livestock¹

Tissue	Observed Feeding Study Maximum Residue Levels ²	Normalized Residue Level ³
Ruminants⁴ (Cattle, Goats, Horses and Sheep)		
Milk, fat ⁵	0.062 ppm	0.06627 ppm ⁶
Liver	0.180 ppm	0.01800 ppm ⁷
Kidney	0.042 ppm	0.00420 ppm ⁷
Muscle	0.066 ppm	0.00660 ppm ⁷
Fat	0.610 ppm	0.06100 ppm ⁷
Swine⁸		
Liver	0.180 ppm	0.00016 ppm
Kidney	0.042 ppm	0.00004 ppm
Muscle	0.066 ppm	0.00006 ppm
Fat	0.610 ppm	0.00057 ppm
Poultry⁹		
Eggs	0.120 ppm	0.00035 ppm
Liver	0.079 ppm	0.00023 ppm
Muscle	0.017 ppm	0.00005 ppm
Skin/Fat	0.220 ppm	0.00064 ppm

¹ Normalized residue value is used as the chronic AR.² Total residues observed at the feeding study maximum dosing level.³ Maximum residues of livestock tissues normalized to 1x (Observed Max Residue / [Feeding Study Max Dose / Table 3 Cont. to Diet]).⁴ The fipronil cattle feeding study was administered at a maximum dose of 0.43 ppm (10x for beef cattle and 29x for dairy cattle). Dairy cattle dosed daily for 35 consecutive days with fipronil; at levels of 0 ppm, 0.04 ppm, 0.13 ppm and 0.43 ppm in the diet (DP Nos. D222541 & D222350, G. F. Kramer, 04/01/1996).⁵ Derived from the maximum residues in whole milk and a theoretical concentration factor of 31x ($[0.062 \text{ ppm}/29\text{x}] \times 31\text{x} = 0.06627 \text{ ppm}$) (DP No. D271641, S. J. Levy, 02/14/2001).⁶ Normalized to 1x for dairy cattle.⁷ Normalized to 1x for beef cattle.⁸ Swine determinations are made using the residue totals observed in cattle tissues at the 0.43 ppm maximum dosing level (1075x).⁹ The fipronil poultry feeding study was administered at a maximum dose of 0.103 ppm (343x). Leghorn hens dosed daily for 42 consecutive days with fipronil; at levels of 0 ppm, 0.01 ppm, 0.031 ppm and 0.103 ppm in the diet (DP No. D214376, G. F. Kramer, 07/25/1995).

In completing the chronic dietary evaluation made herein, DEEM 7.81 processing factors were appropriately used to reflect the possible altering of residue levels through the manufacture of other applicable food forms. The corresponding processing factors were therefore applied accordingly to the chronic fipronil dietary model except for those values specified for the dried potato commodities (flakes and potato, chips, etc.). As previously noted, dried potato food forms are usually given a default processing factor of 6.5 but residue data are available which indicate that it is actually <1 for these commodities. For all other commodities included in this assessment, the default adjustment factor of 1.0 was used to weight the processing affects of alternate food forms. It is important to note that the established tolerance for ruminant meat byproducts does in fact exclude the liver of cattle, goat, horse and sheep in its expression. As a result, the chronic dietary model put forward is constructed using the AR derived for muscle which is the highest residue value for tissue in comparison to kidney as the factor specified for ruminant meat byproducts. A chronic drinking water estimate of 0.000318 ppm was likewise included in this assessment to reflect a possible concentration for fipronil so that this evaluation is protective of such exposures.

III. Drinking Water Data

Through the cultivation of crop commodities, residues of the insecticide fipronil may become evident in water sources as a result of these prescribed uses. For this reason, a drinking water exposure assessment of fipronil was carried out by the Environmental Fate and Effects Division (EFED) with their most recent determination being incorporated directly into this evaluation (DP No. 322415, J. Hetrick, 06/19/2007). This comparative drinking water assessment was made assuming that 100% of fipronil for all proposed and registered uses would be available for degradation, runoff, and leaching into the environment. It is based upon screening level models that incorporate data representative of all exiting uses, new registrations for treatment scenarios such as onion seed, and cancelled uses on applications made to rice. In doing so, an analysis was made by adding the one in ten year peak concentrations for fipronil to determine an acute water estimate of 0.002654 ppm. Similarly, by adding the one in ten year average concentrations for fipronil, a chronic water estimate of 0.000318 ppm was concluded.

IV. DEEM-FCID™ Program and Consumption Information

Fipronil acute and chronic dietary exposure assessments were conducted using the DEEM-FCID™ version 2.03 modeling software. It uses food consumption data from the U.S. Department of Agriculture (USDA) CSFII 1994-1996 and 1998 food intake surveys. The 1994-96, 98 data are based on the reported consumption of more than 20,000 individuals over two non-consecutive survey days. Foods “as consumed” (e.g., apple pie) are linked to EPA-defined food commodities (e.g. apples, peeled fruit - cooked; fresh or N/S; baked; or wheat flour - cooked; fresh or N/S, baked) using publicly available recipe translation files developed jointly by USDA/ARS and EPA. For chronic exposure assessment, consumption data are averaged for the entire U.S. population and within population subgroups, but for the acute exposure assessment they are retained as individual consumption events. Based on analysis of the 1994-96, 98 CSFII consumption data, which took into account dietary patterns and survey respondents, HED concluded that it is most appropriate to report risk for the following population subgroups: the general U.S. population, all infants (<1 year old), children 1-2, children 3-5, children 6-12, youth 13-19, adults 20-49, females 13-49, and adults 50+ years old.

For acute exposure assessments, individual one-day food consumption data are used on an individual-by-individual basis. The reported consumption amounts of each food item can be multiplied by a residue point estimate and summed to obtain a total daily pesticide exposure for a deterministic exposure assessment, or “matched” in multiple random pairings with residue values and then summed in a probabilistic assessment. The resulting distribution of exposures is expressed as a percentage of the aPAD on both a user (i.e., only those who reported eating relevant commodities/food forms) and a per-capita (i.e., those who reported eating the relevant commodities as well as those who did not) basis. In accordance with HED policy, per capita exposure and risk are reported for all tiers of analysis. However, for tiers 1 and 2, any significant differences in user vs. per capita exposure and risk are specifically identified and noted in the risk assessment.

For chronic dietary exposure assessment, an estimate of the residue level in each food or food-form (e.g., orange or orange juice) on the food commodity residue list is multiplied by the average daily consumption estimate for that food/food form to produce a residue intake estimate. The resulting residue intake estimate for each food/food form is summed with the residue intake estimates for all other food/food forms on the commodity residue list to arrive at the total average estimated exposure. Exposure is expressed in mg/kg body weight/day and as a percent of the cPAD. This procedure is performed for each population subgroup.

V. Toxicological Information

To carry out this dietary analysis, a toxicological profile was followed which identified the possible hazards which can occur through exposure to fipronil. In general, fipronil is a broad-spectrum pyrazole class insecticide that works by disrupting the central nervous system of insects. It is considered to be a possible carcinogen and suspected endocrine disruptor with a distinct probability for becoming a potential ground water contaminant through its many prescribed agricultural uses. For this evaluation, the acute and chronic dietary endpoints were selected for fipronil following the toxicity study results summarized in the prior risk assessment (DP No. D331890, B. Hanson, 06/19/2007). A standard 100 fold Uncertainty Factor (UF) to account for inter- and intra-species variations was applied accordingly. In regard to the effects of fipronil on developing animals following *in utero* and/or early postnatal exposure, there are no data gaps evident concerning these risks. Using this hazard and exposure data, the HIARC has concluded that any apparent increased sensitivity in infants and children is not substantiated warranting a reduction in the FQPA safety factor to 1x (FQPA Report Memorandum 012619, B. Tarplee & J. Rowland, 05/12/1998).

Given the available toxicity data compiled for fipronil, a No Observed Adverse Effect Level (NOAEL) of 2.5 mg/Kg was selected and an acute Reference Dose (aRfD) of 0.025 mg/Kg/day was determined. These quantities are based upon the toxicological effects of decreased hind leg splay in males observed in an acute neurotoxicity study made in rats. In conjunction, a NOAEL of 0.019 mg/Kg was selected and a chronic Reference Dose (cRfD) of 0.0002 mg/kg/day was likewise determined. These levels are based upon the increased incidence of seizures and death along with alterations in clinical chemistry (protein) observed in the chronic/onco rat study. As previously noted, cancer concerns from long-term fipronil consumption can be adequately addressed when undertaking chronic dietary exposure analyses. No separate assessments of cancer risks were therefore initiated in performing the fipronil dietary evaluations made herein. In accordance, a summary of the doses and toxicological endpoints selected for the dietary exposure scenarios which were performed are provided in Table 5.

Table 5. Summary of Fipronil Toxicological Doses and Endpoints Used for Dietary Assessment.			
Exposure Scenario	Dose Used in Risk Assessment, UF	Hazard and Exposure Based Special FQPA Safety Factor	Study and Toxicological Effects
Acute Dietary <u>All populations</u>	NOAEL = 2.5 mg/Kg/day UF ¹ = 100 Acute RfD = $\frac{\text{NOAEL}}{\text{UF}}$ = 0.025 mg/Kg/day	FQPA SF = 1x aPAD = $\frac{\text{aRfD}}{\text{FQPA SF}}$ = 0.025 mg/kg/day	Acute Neurotoxicity Study in Rats LOAEL ² = 7.0 mg/Kg based on decreased hind leg splay in males at 7 hours.
Chronic Dietary <u>all populations</u>	NOAEL = 0.019 mg/kg/day UF = 100 Chronic RfD = $\frac{\text{NOAEL}}{\text{UF}}$ = 0.0002 mg/Kg/day	FQPA SF = 1x cPAD = $\frac{\text{cRfD}}{\text{FQPA SF}}$ = 0.0002 mg/Kg/day	Chronic/onco Rat Study LOAEL = 0.059 mg/Kg based on increased incidence of seizures and death, alterations in in clinical chemistry (protein), and TSH, T4.
Cancer	Group C – possible human carcinogen.	Use chronic RfD to estimate human risk.	Increases in thyroid follicular cell tumors with fipronil (male/female).

¹ Uncertainty Factor

² Lowest Observed Adverse Effect Level (LOAEL).

VI. Results/Discussion

As stated above, for acute and chronic assessments, HED is concerned when dietary risk exceeds 100% of the PAD. The DEEM-FCID™ analyses estimate the dietary exposure of the U.S. population and its various subgroups. The results reported in Tables 4 and 5 are for the general U.S. Population, all infants (<1 year old), children 1-2, children 3-5, children 6-12, youth 13-19, females 13-49, adults 20-49, and adults 50+ years.

Results of Acute and Chronic Dietary Exposure Analysis

Acute and refined chronic dietary risk analyses were made with the DEEM-FCID™ model to form a conservative evaluation of exposure to fipronil. The acute dietary analysis made at the 95th percentile of exposure distribution indicate that risk estimates are reasonably below the 100% of the aPAD threshold level of concern for each population subgroup. For the most highly exposed population subgroup, children 1-2 years of age, acute dietary risk was estimated to be only 25% of the aPAD with an exposure of 0.006209 mg/kg/day. In conjunction, the refined chronic analysis which was made also yielded risk estimates below the 100% of the cPAD threshold level of concern for each population subgroup. Likewise, for children 1-2 years of age, the resulting chronic dietary risk proved to be 95% of the cPAD with an exposure of 0.000190 mg/kg/day. An overview summarizing the results of the acute and refined chronic dietary assessments with the population subgroup having the highest exposure being noted in bold is presented below in Table 6.

Table 6. Summary of Dietary Exposure and Risk for Fipronil				
Population Subgroup	Acute Dietary ¹ (95 th Percentile)		Chronic Dietary ²	
	Dietary Exposure (mg/kg/day)	% aPAD	Dietary Exposure (mg/kg/day)	% cPAD
General U.S. Population	0.002389	9.6	0.000073	36
All Infants (< 1 year old)	0.003279	13	0.000066	33
Children 1-2 years old	0.006209	25	0.000190	95
Children 3-5 years old	0.004455	18	0.000157	78
Children 6-12 years old	0.002913	12	0.000100	50
Youth 13-19 years old	0.001822	7.3	0.000063	32
Adults 20-49 years old	0.001384	5.5	0.000056	28
Adults 50+ years old	0.001142	4.6	0.000064	32
Females 13-49 years old	0.001308	5.2	0.000051	26

¹ Acute dietary analysis derived from a 0.025 mg/kg/day aPAD.

² Chronic dietary analysis derived from a 0.0002 mg/kg/day cPAD.

VII. Characterization of Inputs/Outputs

The acute and chronic dietary risk assessments made with DEEM-FCID™ to evaluate exposure from residues of fipronil in both food and drinking water are conservative analyses. The acute dietary risk assessment was made using no refinements based exclusively on tolerance level residues and 100 % crop treated assumptions. Alternately, the chronic dietary assessment is a refined evaluation based upon anticipated residue levels and %CT information since prior unrefined evaluations have exceeded the 100% cPAD threshold level of concern. Consequently, these analyses are being made because the registrant will no longer maintain the United States registration of fipronil on rice but will continue to support this use overseas. In doing so, this assessment appropriately uses field trial data for rice compiled from several studies conducted abroad and includes all food uses as well as current drinking water estimates. Although fipronil is categorized as a possible human carcinogen, no separate assessment of cancer risks were made since these concerns can be adequately addressed through chronic dietary exposure analyses.

In rendering this dietary risk assessment, the metabolism of fipronil is considered to be sufficiently understood. DEEM 7.81 processing factors were utilized for all applicable commodities to reflect the possible altering of residue levels through the manufacture of other food forms such as dried fruits and juices. For the other commodities incorporated into this assessment, the default adjustment factor of 1.0 was used to weight the processing affects of alternate food forms. It is important to note that feeding study residue estimates for all livestock commodities were revised according to current guidelines and appropriately included in this evaluation. For these reasons, this DEEM-FCID™ analysis does not underestimate dietary risk from exposure to fipronil for the general U.S. population and all its subgroups. In addition, to gain a better understanding of fipronil chronic dietary exposure, a critical commodity contribution analysis was conducted for the most highly exposed population subgroup, children 1-2 years of age. This analysis has shown dairy products, meat, and cereal grains to be the chronic dietary risk drivers of fipronil comprising 43%, 14% and 11% of the total exposure respectively.

VIII. Conclusions

The acute and refined chronic dietary risk assessments made with DEEM-FCID™ indicate that food and drinking water exposures to fipronil are below HED's level of concern. The resulting acute evaluation for fipronil is reported at the 95th percentile of exposure for the general U.S. population and all of its subgroups. Subsequently, acute dietary exposure to fipronil was estimated to be 9.6% of the aPAD for the general U.S. population. In comparison, the chronic dietary exposure to fipronil was estimated to be 36% of the cPAD for the general U.S. population. For the most highly exposed population subgroup, children 1-2 years of age, both acute and chronic dietary risk were estimated to be below HED's level of concern. For this subgroup, the acute analysis was found to be only 25% of the aPAD and the resulting chronic determination at 95% of the cPAD. A critical commodity contribution analysis made for children 1-2 years of age, the most highly exposed population subgroup, has shown dairy products, meat, and cereal grains to be the chronic dietary risk drivers of fipronil comprising 43%, 14% and 11% of the total exposure respectively.

Fipronil

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DP No.: D368732

References

DP No.: D329350
Subject: Fipronil. Amended Acute and Chronic Dietary Exposure Assessments for the Use of Fipronil on Onion Seed, Shallot Seed, and the Tuberous and Corm Vegetables Crop Group 1C.
From: B. Hanson
To: A. Sibold
Dated: 06/19/2007
MRID No.: None

TXR No.: 0011616
Subject: Carcinogenicity Peer Review of Fipronil.
From: V. Dobozy
To: R. Keigwin
Dated: 07/18/1995
MRID No.: None

DP No.: 012607
Subject: Fipronil: Reevaluation – Report of the Hazard Identification Assessment Review Committee.
From: J. Rowland
To: G. Kramer
Dated: 05/07/1998
MRID No.: None

DP No.: D236164
Subject: HED Metabolism Committee Meeting of 05/28/97. Fipronil. Significance of Metabolite RPA 200766. PP#5F04426. Chemical# 129121. DP Barcode D236164.
From: R. Loranger
To: HED Metabolism Committee Members
Dated: 05/28/1997
MRID No.: None

DP No.: D368740
Subject: Fipronil. Petition to Support and Maintain the Established Rice Grain Tolerance as an Import Tolerance. Summary of Analytical Chemistry and Residue Data. PP#8E7480.
From: W. H. Donovan
To: B. Akinlosotu
Dated: 08/25/2009
MRID No.: 47530301-47530313

DP No.: D316795
Subject: Fipronil. Acute and Chronic Dietary Exposure Assessments for the Use of Fipronil on Rutabaga and Turnip, Onion Seed, Shallot Seed, Potatoes and Sweet Potatoes.
From: B. Hanson
To: D. Rosenblatt
Dated: 08/29/2005
MRID No.: None

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DP No.: None
 Subject: Usage Report Package in Support of Registration for the Insecticide Fipronil (129121).
 From: A. H. Grube
 To: W. H. Donovan
 Dated: 07/23/2009
 MRID No.: None

DP No.: None
 Subject: Draft Usage Report/Package in Support of Registration/Reregistration for the Insecticide Fipronil (PC 129121).
 From: A. Grube and D. Brassard
 To: W. H. Donovan
 Dated: 08/27/2009
 MRID No.: None

DP No.: None
 Subject: Email; US Rice Imports are 15% of the Domestic Market.
 From: D. Brassard
 To: W. H. Donovan
 Dated: 07/21/2009
 MRID No.: None

DP Nos.: D313293, D318283, D318677, and D319854
 Subject: Fipronil in/on Dry Bulb Onions (Seed Treatment) and Potatoes. PP#s 2E6490 and 5F6948. Summary of Analytical Chemistry and Residue Data.
 From: M. Sahafeyan
 To: R. Gebken
 Dated: 08/05/2005
 MRID Nos.: 44262833, 44262835, 44604802, and 45731401

DP Nos.: D255833
 Subject: 99MS0011. **Calculation of Anticipated Residues** for Section 18 Exemption for use of Fipronil in/on Cottonseed in Mississippi. PC Code: 129121. DP Barcode: 255833. Case#: 291825. Submission: S560375.
 From: S. Chun
 To: S. Chun
 Dated: 05/19/1999
 MRID Nos.: None

DP No.: D316795, D322527, and D322529
 Subject: Fipronil. Acute and Chronic Dietary Exposure Assessments for the Use of Fipronil on Rutabaga, Turnip, and Corn.
 From: B. Hanson
 To: D. Rosenblatt
 Dated: 11/07/2005
 MRID No.: None

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DP No.: D271641
 Subject: **PP#7F04832. Calculation of Anticipated Residues (ARs) and Acute and Chronic Dietary Exposure Analyses for Proposed Section 3 Registration of Fipronil on Cottonseed.** PC Code: 129121. DP Barcode: D271641. Case #: 291825. Submission: S560375.
 From: S. J. Levy
 To: S. J. Levy
 Dated: 02/14/2001
 MRID Nos.: None

DP Nos.: D222541 and D222350
 Subject: **PP#5F04426. Fipronil in or on Corn and Animal RACs. Amendment of 12/20/1995. Chemical# 129121. MRID Nos. 438840-04 thru -11. Barcodes D222541 & D222350. CBTS Nos. 16773 & 16774.**
 From: G. F. Kramer
 To: R. Keigwin
 Dated: 04/01/1996
 MRID Nos.: 43884004-43884011

DP No.: D322415
 Subject: **Clarification on the revised Drinking Water Assessment in Response to registrant Comments on Comparative Drinking Water Assessment for Proposed and Registered Fipronil Uses (PC Code 129121; DP Barcode 322415).**
 From: J. Hetrick
 To: R. Gebken
 Dated: 06/19/2007
 MRID No.: None

DP No.: D331890
 Subject: **Petition Number: 5F6948 - AMENDED Human Health Risk Assessment for Fipronil Incorporating the IR-4 Section 3 Petition for Onion and Shallot Seed (dry bulb) and a Proposed Permanent Tolerance on Tuberosus and Corm Vegetables (Crop Group 1C).**
 From: B. Hanson
 To: B. Madden and A. Sibold
 Dated: 06/19/2007
 MRID No.: None

DP No.: 012619
 Subject: **Fipronil – Report of the FQPA Safety Factor Committee.**
 From: B. Tarplee and J. Rowland
 To: M. Morrow
 Dated: 05/12/1998
 MRID No.: None

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IX. List of Attachments

1. Attachment 1: Acute Residue Data File of Inputs.
2. Attachment 2: Acute Dietary Assessment Results File.
3. Attachment 3: Chronic Residue Data File of Inputs.
4. Attachment 4: Chronic Dietary Assessment Results File.
5. Attachment 5: Critical Commodity Contribution Analysis for Children 1-2 yrs.
6. Attachment 6: % Crop Treated Screening Level Usage Analyses for Fipronil.

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ATTACHMENT 1

Filename: C:\Documents and Settings\PSAVOIA\My Documents\Fipronil\Fipronil

Deem\129121Acute.R98

Chemical: Fipronil

RfD(Chronic): 0 mg/kg bw/day NOEL(Chronic): 0 mg/kg bw/day

RfD(Acute): .025 mg/kg bw/day NOEL(Acute): 2.5 mg/kg bw/day

Date created/last modified: 07-07-2009/15:20:49/8

Program ver. 2.03

Comment: Unrefined acute dietary analysis to support establishing an import tolerance for fipronil on rice based on 100% crop treated tolerance level residues on all uses which includes drinking water.

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj. Factors #1	Adj. Factors #2	Comment
01030150	1CD	Arrowroot, flour	0.030000	1.000	1.000	
01030151	1CD	Arrowroot, flour-babyfood	0.030000	1.000	1.000	
01030170	1CD	Artichoke, Jerusalem				
		110-Uncooked; Fresh or N/S; Cook Meth N/S				
			0.030000	1.000	1.000	
21000440	M	Beef, meat	0.040000	1.000	1.000	
21000441	M	Beef, meat-babyfood	0.040000	1.000	1.000	
21000450	M	Beef, meat, dried	0.040000	1.920	1.000	
21000460	M	Beef, meat byproducts	0.040000	1.000	1.000	
21000461	M	Beef, meat byproducts-babyfood	0.040000	1.000	1.000	
21000470	M	Beef, fat	0.400000	1.000	1.000	
21000471	M	Beef, fat-babyfood	0.400000	1.000	1.000	
21000480	M	Beef, kidney	0.040000	1.000	1.000	
21000490	M	Beef, liver	0.100000	1.000	1.000	
21000491	M	Beef, liver-babyfood	0.100000	1.000	1.000	
01030820	1CD	Cassava	0.030000	1.000	1.000	
01030821	1CD	Cassava-babyfood	0.030000	1.000	1.000	
40000930	P	Chicken, meat	0.020000	1.000	1.000	
40000931	P	Chicken, meat-babyfood	0.020000	1.000	1.000	
40000940	P	Chicken, liver	0.020000	1.000	1.000	
40000950	P	Chicken, meat byproducts	0.020000	1.000	1.000	
40000951	P	Chicken, meat byproducts-babyfood	0.020000	1.000	1.000	
40000960	P	Chicken, fat	0.050000	1.000	1.000	
40000961	P	Chicken, fat-babyfood	0.050000	1.000	1.000	
40000970	P	Chicken, skin	0.050000	1.000	1.000	
40000971	P	Chicken, skin-babyfood	0.050000	1.000	1.000	
15001200	15	Corn, field, flour	0.020000	1.000	1.000	
15001201	15	Corn, field, flour-babyfood	0.020000	1.000	1.000	
15001210	15	Corn, field, meal	0.020000	1.000	1.000	
15001211	15	Corn, field, meal-babyfood	0.020000	1.000	1.000	
15001220	15	Corn, field, bran	0.020000	1.000	1.000	
15001230	15	Corn, field, starch	0.020000	1.000	1.000	
15001231	15	Corn, field, starch-babyfood	0.020000	1.000	1.000	
15001240	15	Corn, field, syrup	0.020000	1.500	1.000	
15001241	15	Corn, field, syrup-babyfood	0.020000	1.500	1.000	
15001250	15	Corn, field, oil	0.020000	1.000	1.000	
15001251	15	Corn, field, oil-babyfood	0.020000	1.000	1.000	
01031390	1CD	Dasheen, corm	0.030000	1.000	1.000	
70001450	P	Egg, whole	0.030000	1.000	1.000	
70001451	P	Egg, whole-babyfood	0.030000	1.000	1.000	
70001460	P	Egg, white	0.030000	1.000	1.000	
70001461	P	Egg, white (solids)-babyfood	0.030000	1.000	1.000	
70001470	P	Egg, yolk	0.030000	1.000	1.000	
70001471	P	Egg, yolk-babyfood	0.030000	1.000	1.000	
01031660	1CD	Ginger	0.030000	1.000	1.000	
01031661	1CD	Ginger-babyfood	0.030000	1.000	1.000	
01031670	1CD	Ginger, dried	0.030000	1.000	1.000	
23001690	M	Goat, meat	0.040000	1.000	1.000	
23001700	M	Goat, meat byproducts	0.040000	1.000	1.000	
23001710	M	Goat, fat	0.400000	1.000	1.000	
23001720	M	Goat, kidney	0.040000	1.000	1.000	

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EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj. Factors #1	Adj. Factors #2	Comment
23001730	M	Goat, liver	0.100000	1.000	1.000	
24001890	M	Horse, meat	0.040000	1.000	1.000	
27002220	D	Milk, fat	1.500000	1.000	1.000	
27002221	D	Milk, fat - baby food/infant for	1.500000	1.000	1.000	
03002370	3	Onion, dry bulb	0.030000	1.000	1.000	
03002371	3	Onion, dry bulb-babyfood	0.030000	1.000	1.000	
03002380	3	Onion, dry bulb, dried	0.030000	1.000	1.000	
03002381	3	Onion, dry bulb, dried-babyfood	0.030000	1.000	1.000	
25002900	M	Pork, meat	0.100000	1.000	1.000	
25002901	M	Pork, meat-babyfood	0.100000	1.000	1.000	
25002910	M	Pork, skin	0.040000	1.000	1.000	
25002920	M	Pork, meat byproducts	0.010000	1.000	1.000	
25002921	M	Pork, meat byproducts-babyfood	0.010000	1.000	1.000	
25002930	M	Pork, fat	0.040000	1.000	1.000	
25002931	M	Pork, fat-babyfood	0.040000	1.000	1.000	
25002940	M	Pork, kidney	0.010000	1.000	1.000	
25002950	M	Pork, liver	0.020000	1.000	1.000	
01032960	1C	Potato, chips	0.030000	1.000	1.000	
01032970	1C	Potato, dry (granules/ flakes)	0.030000	1.000	1.000	
01032971	1C	Potato, dry (granules/ flakes)-b	0.030000	1.000	1.000	
01032980	1C	Potato, flour	0.030000	1.000	1.000	
01032981	1C	Potato, flour-babyfood	0.030000	1.000	1.000	
01032990	1C	Potato, tuber, w/peel	0.030000	1.000	1.000	
01032991	1C	Potato, tuber, w/peel-babyfood	0.030000	1.000	1.000	
01033000	1C	Potato, tuber, w/o peel	0.030000	1.000	1.000	
01033001	1C	Potato, tuber, w/o peel-babyfood	0.030000	1.000	1.000	
60003010	P	Poultry, other, meat	0.020000	1.000	1.000	
60003020	P	Poultry, other, liver	0.020000	1.000	1.000	
60003030	P	Poultry, other, meat byproducts	0.020000	1.000	1.000	
60003040	P	Poultry, other, fat	0.050000	1.000	1.000	
60003050	P	Poultry, other, skin	0.050000	1.000	1.000	
15003230	15	Rice, white	0.040000	1.000	1.000	
15003231	15	Rice, white-babyfood	0.040000	1.000	1.000	
15003240	15	Rice, brown	0.040000	1.000	1.000	
15003241	15	Rice, brown-babyfood	0.040000	1.000	1.000	
15003250	15	Rice, flour	0.040000	1.000	1.000	
15003251	15	Rice, flour-babyfood	0.040000	1.000	1.000	
15003260	15	Rice, bran	0.040000	1.000	1.000	
15003261	15	Rice, bran-babyfood	0.040000	1.000	1.000	
01013270	1AB	Rutabaga	1.000000	1.000	1.000	
03003380	3	Shallot	0.030000	1.000	1.000	
26003390	M	Sheep, meat	0.040000	1.000	1.000	
26003391	M	Sheep, meat-babyfood	0.040000	1.000	1.000	
26003400	M	Sheep, meat byproducts	0.040000	1.000	1.000	
26003410	M	Sheep, fat	0.400000	1.000	1.000	
26003411	M	Sheep, fat-babyfood	0.400000	1.000	1.000	
26003420	M	Sheep, kidney	0.040000	1.000	1.000	
26003430	M	Sheep, liver	0.100000	1.000	1.000	
01033660	1CD	Sweet potato	0.030000	1.000	1.000	
01033661	1CD	Sweet potato-babyfood	0.030000	1.000	1.000	
01033710	1CD	Tanier, corm	0.030000	1.000	1.000	
15003810	15	Triticale, flour	0.005000	1.000	1.000	
15003811	15	Triticale, flour-babyfood	0.005000	1.000	1.000	
50003820	P	Turkey, meat	0.020000	1.000	1.000	
50003821	P	Turkey, meat-babyfood	0.020000	1.000	1.000	
50003830	P	Turkey, liver	0.020000	1.000	1.000	
50003831	P	Turkey, liver-babyfood	0.020000	1.000	1.000	
50003840	P	Turkey, meat byproducts	0.020000	1.000	1.000	
50003841	P	Turkey, meat byproducts-babyfood	0.020000	1.000	1.000	
50003850	P	Turkey, fat	0.050000	1.000	1.000	
50003851	P	Turkey, fat-babyfood	0.050000	1.000	1.000	
50003860	P	Turkey, skin	0.050000	1.000	1.000	
50003861	P	Turkey, skin-babyfood	0.050000	1.000	1.000	

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EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj. Factors #1	Adj. Factors #2	Comment
01033870	1CD	Turmeric	0.030000	1.000	1.000	
05023890	5B	Turnip, greens	1.000000	1.000	1.000	
01013880	1AB	Turnip, roots	1.000000	1.000	1.000	
86010000	O	Water, direct, all sources	0.002654	1.000	1.000	
86020000	O	Water, indirect, all sources	0.002654	1.000	1.000	
15004010	15	Wheat, grain	0.005000	1.000	1.000	
15004011	15	Wheat, grain-babyfood	0.005000	1.000	1.000	
15004020	15	Wheat, flour	0.005000	1.000	1.000	
15004021	15	Wheat, flour-babyfood	0.005000	1.000	1.000	
15004030	15	Wheat, germ	0.005000	1.000	1.000	
15004040	15	Wheat, bran	0.005000	1.000	1.000	
01034060	1CD	Yam, true	0.030000	1.000	1.000	
01034070	1CD	Yam bean	0.030000	1.000	1.000	

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ATTACHMENT 2

U.S. Environmental Protection Agency Ver. 2.02
 DEEM-FCID ACUTE Analysis for FIPRONIL (1994-98 data)
 Residue file: 129121Acute.R98 Adjustment factor #2 NOT used.
 Analysis Date: 07-07-2009/15:56:29 Residue file dated: 07-07-2009/15:20:49/8
 Daily totals for food and foodform consumption used.
 Run Comment: "Unrefined acute dietary analysis to support establishing an import tolerance for fipronil on rice based on 100% crop treated tolerance level residues on all uses which includes drinking water."
 =====

Summary calculations (per capita):

	95th Percentile		99th Percentile		99.9th Percentile	
	Exposure	% aRfD	Exposure	% aRfD	Exposure	% aRfD
U.S. Population:	0.002389	9.55	0.004305	17.22	0.007545	30.18
All infants:	0.003279	13.12	0.008134	32.54	0.011106	44.43
Children 1-2 yrs:	0.006209	24.84	0.008416	33.66	0.012306	49.23
Children 3-5 yrs:	0.004455	17.82	0.006242	24.97	0.010217	40.87
Children 6-12 yrs:	0.002913	11.65	0.004112	16.45	0.006858	27.43
Youth 13-19 yrs:	0.001822	7.29	0.002959	11.83	0.005455	21.82
Adults 20-49 yrs:	0.001384	5.54	0.002384	9.54	0.003749	15.00
Adults 50+ yrs:	0.001142	4.57	0.001981	7.92	0.004050	16.20
Females 13-49 yrs:	0.001308	5.23	0.001975	7.90	0.003464	13.85

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ATTACHMENT 3

Filename: C:\Documents and Settings\PSAVOIA\My Documents\Fipronil\Fipronil

Deem\129121Chronic.R98

Chemical: Fipronil

RfD(Chronic): .0002 mg/kg bw/day NOEL(Chronic): .02 mg/kg bw/day

RfD(Acute): 0 mg/kg bw/day NOEL(Acute): 0 mg/kg bw/day

Date created/last modified: 09-16-2009/18:35:16/8

Program ver. 2.03

Comment: Refined chronic dietary analysis to support establishing an import tolerance on rice based on 100% crop treated anticipated residue levels on all uses which includes drinking water.

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj. Factors #1	Adj. Factors #2	Comment
01030150	1CD	Arrowroot, flour	0.012000	1.000	1.000	
01030151	1CD	Arrowroot, flour-babyfood	0.012000	1.000	1.000	
01030170	1CD	Artichoke, Jerusalem	0.012000	1.000	1.000	
21000440	M	Beef, meat	0.006600	1.000	1.000	
21000441	M	Beef, meat-babyfood	0.006600	1.000	1.000	
21000450	M	Beef, meat, dried	0.006600	1.920	1.000	
21000460	M	Beef, meat byproducts	0.006600	1.000	1.000	
21000461	M	Beef, meat byproducts-babyfood	0.006600	1.000	1.000	
21000470	M	Beef, fat	0.061000	1.000	1.000	
21000471	M	Beef, fat-babyfood	0.061000	1.000	1.000	
21000480	M	Beef, kidney	0.004200	1.000	1.000	
21000490	M	Beef, liver	0.018000	1.000	1.000	
21000491	M	Beef, liver-babyfood	0.018000	1.000	1.000	
01030820	1CD	Cassava	0.012000	1.000	1.000	
01030821	1CD	Cassava-babyfood	0.012000	1.000	1.000	
40000930	P	Chicken, meat	0.000050	1.000	1.000	
40000931	P	Chicken, meat-babyfood	0.000050	1.000	1.000	
40000940	P	Chicken, liver	0.000230	1.000	1.000	
40000950	P	Chicken, meat byproducts	0.000230	1.000	1.000	
40000951	P	Chicken, meat byproducts-babyfoo	0.000230	1.000	1.000	
40000960	P	Chicken, fat	0.000640	1.000	1.000	
40000961	P	Chicken, fat-babyfood	0.000640	1.000	1.000	
40000970	P	Chicken, skin	0.000640	1.000	1.000	
40000971	P	Chicken, skin-babyfood	0.000640	1.000	1.000	
15001200	15	Corn, field, flour	0.015000	1.000	0.025	
15001201	15	Corn, field, flour-babyfood	0.015000	1.000	0.025	
15001210	15	Corn, field, meal	0.015000	1.000	0.025	
15001211	15	Corn, field, meal-babyfood	0.015000	1.000	0.025	
15001220	15	Corn, field, bran	0.015000	1.000	0.025	
15001230	15	Corn, field, starch	0.015000	1.000	0.025	
15001231	15	Corn, field, starch-babyfood	0.015000	1.000	0.025	
15001240	15	Corn, field, syrup	0.015000	1.500	0.025	
15001241	15	Corn, field, syrup-babyfood	0.015000	1.500	0.025	
15001250	15	Corn, field, oil	0.015000	1.000	0.025	
15001251	15	Corn, field, oil-babyfood	0.015000	1.000	0.025	
01031390	1CD	Dasheen, corm	0.012000	1.000	1.000	
70001450	P	Egg, whole	0.000350	1.000	1.000	
70001451	P	Egg, whole-babyfood	0.000350	1.000	1.000	
70001460	P	Egg, white	0.000350	1.000	1.000	
70001461	P	Egg, white (solids)-babyfood	0.000350	1.000	1.000	
70001470	P	Egg, yolk	0.000350	1.000	1.000	
70001471	P	Egg, yolk-babyfood	0.000350	1.000	1.000	
01031660	1CD	Ginger	0.012000	1.000	1.000	
01031661	1CD	Ginger-babyfood	0.012000	1.000	1.000	
01031670	1CD	Ginger, dried	0.012000	1.000	1.000	
23001690	M	Goat, meat	0.006600	1.000	1.000	
23001700	M	Goat, meat byproducts	0.006600	1.000	1.000	
23001710	M	Goat, fat	0.061000	1.000	1.000	
23001720	M	Goat, kidney	0.004200	1.000	1.000	
23001730	M	Goat, liver	0.018000	1.000	1.000	

Fipronil

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EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj. Factors #1	Adj. Factors #2	Comment
24001890	M	Horse, meat	0.006600	1.000	1.000	
27002220	D	Milk, fat	0.066270	1.000	1.000	
27002221	D	Milk, fat - baby food/infant for	0.066270	1.000	1.000	
03002370	3	Onion, dry bulb	0.021000	1.000	1.000	
03002371	3	Onion, dry bulb-babyfood	0.021000	1.000	1.000	
03002380	3	Onion, dry bulb, dried	0.021000	1.000	1.000	
03002381	3	Onion, dry bulb, dried-babyfood	0.021000	1.000	1.000	
25002900	M	Pork, meat	0.000060	1.000	1.000	
25002901	M	Pork, meat-babyfood	0.000060	1.000	1.000	
25002910	M	Pork, skin	0.000570	1.000	1.000	
25002920	M	Pork, meat byproducts	0.000040	1.000	1.000	
25002921	M	Pork, meat byproducts-babyfood	0.000040	1.000	1.000	
25002930	M	Pork, fat	0.000570	1.000	1.000	
25002931	M	Pork, fat-babyfood	0.000570	1.000	1.000	
25002940	M	Pork, kidney	0.000040	1.000	1.000	
25002950	M	Pork, liver	0.000160	1.000	1.000	
01032960	1C	Potato, chips	0.004800	1.000	0.430	PF in Res.
01032970	1C	Potato, dry (granules/ flakes)	0.005600	1.000	0.430	PF in Res.
01032971	1C	Potato, dry (granules/ flakes)-b	0.005600	1.000	0.430	PF in Res.
01032980	1C	Potato, flour	0.012000	1.000	0.430	
01032981	1C	Potato, flour-babyfood	0.012000	1.000	0.430	
01032990	1C	Potato, tuber, w/peel	0.012000	1.000	0.430	
01032991	1C	Potato, tuber, w/peel-babyfood	0.012000	1.000	0.430	
01033000	1C	Potato, tuber, w/o peel	0.012000	1.000	0.430	
01033001	1C	Potato, tuber, w/o peel-babyfood	0.012000	1.000	0.430	
60003010	P	Poultry, other, meat	0.000050	1.000	1.000	
60003020	P	Poultry, other, liver	0.000230	1.000	1.000	
60003030	P	Poultry, other, meat byproducts	0.000230	1.000	1.000	
60003040	P	Poultry, other, fat	0.000640	1.000	1.000	
60003050	P	Poultry, other, skin	0.000640	1.000	1.000	
15003230	15	Rice, white	0.017000	1.000	0.150	
15003231	15	Rice, white-babyfood	0.017000	1.000	0.150	
15003240	15	Rice, brown	0.017000	1.000	0.150	
15003241	15	Rice, brown-babyfood	0.017000	1.000	0.150	
15003250	15	Rice, flour	0.017000	1.000	0.150	
15003251	15	Rice, flour-babyfood	0.017000	1.000	0.150	
15003260	15	Rice, bran	0.017000	1.000	0.150	
15003261	15	Rice, bran-babyfood	0.017000	1.000	0.150	
01013270	1AB	Rutabaga	1.000000	1.000	1.000	
03003380	3	Shallot	0.021000	1.000	1.000	
26003390	M	Sheep, meat	0.006600	1.000	1.000	
26003391	M	Sheep, meat-babyfood	0.006600	1.000	1.000	
26003400	M	Sheep, meat byproducts	0.004200	1.000	1.000	
26003410	M	Sheep, fat	0.061000	1.000	1.000	
26003411	M	Sheep, fat-babyfood	0.061000	1.000	1.000	
26003420	M	Sheep, kidney	0.004200	1.000	1.000	
26003430	M	Sheep, liver	0.018000	1.000	1.000	
01033660	1CD	Sweet potato	0.012000	1.000	1.000	
01033661	1CD	Sweet potato-babyfood	0.012000	1.000	1.000	
01033710	1CD	Tanier, corm	0.012000	1.000	1.000	
15003810	15	Triticale, flour	0.005000	1.000	1.000	
15003811	15	Triticale, flour-babyfood	0.005000	1.000	1.000	
50003820	P	Turkey, meat	0.000050	1.000	1.000	
50003821	P	Turkey, meat-babyfood	0.000050	1.000	1.000	
50003830	P	Turkey, liver	0.000230	1.000	1.000	
50003831	P	Turkey, liver-babyfood	0.000230	1.000	1.000	
50003840	P	Turkey, meat byproducts	0.000230	1.000	1.000	
50003841	P	Turkey, meat byproducts-babyfood	0.000230	1.000	1.000	
50003850	P	Turkey, fat	0.000640	1.000	1.000	
50003851	P	Turkey, fat-babyfood	0.000640	1.000	1.000	
50003860	P	Turkey, skin	0.000640	1.000	1.000	
50003861	P	Turkey, skin-babyfood	0.000640	1.000	1.000	

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EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj. Factors #1	Adj. Factors #2	Comment
01033870	1CD	Turmeric	0.012000	1.000	1.000	
05023890	5B	Turnip, greens	1.000000	1.000	1.000	
01013880	1AB	Turnip, roots	1.000000	1.000	1.000	
86010000	O	Water, direct, all sources	0.000318	1.000	1.000	
86020000	O	Water, indirect, all sources	0.000318	1.000	1.000	
15004010	15	Wheat, grain	0.005000	1.000	1.000	
15004011	15	Wheat, grain-babyfood	0.005000	1.000	1.000	
15004020	15	Wheat, flour	0.005000	1.000	1.000	
15004021	15	Wheat, flour-babyfood	0.005000	1.000	1.000	
15004030	15	Wheat, germ	0.005000	1.000	1.000	
15004040	15	Wheat, bran	0.005000	1.000	1.000	
01034060	1CD	Yam, true	0.012000	1.000	1.000	
01034070	1CD	Yam bean	0.012000	1.000	1.000	

Fipronil

Aggregate Dietary Exposure Assessment

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ATTACHMENT 4

U.S. Environmental Protection Agency
 DEEM-FCID Chronic analysis for FIPRONIL
 Residue file name: C:\Documents and Settings\tmorton\My Documents\MyFiles\Petes
 Fipronil\129121Chronic.R98

Ver. 2.00
 (1994-98 data)

Adjustment factor #2 used.

Analysis Date 09-17-2009/07:19:59 Residue file dated: 09-16-2009/18:35:16/8

Reference dose (RfD, Chronic) = .0002 mg/kg bw/day

COMMENT 1: Refined chronic dietary analysis to support establishing an import tolerance on
 rice based on 100% crop treated anticipated residue levels on all uses which includes
 drinking water.

=====

Total exposure by population subgroup

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Percent of Rfd
U.S. Population (total)	0.000073	36.3%
U.S. Population (spring season)	0.000069	34.5%
U.S. Population (summer season)	0.000069	34.5%
U.S. Population (autumn season)	0.000079	39.6%
U.S. Population (winter season)	0.000073	36.4%
Northeast region	0.000069	34.7%
Midwest region	0.000072	35.8%
Southern region	0.000079	39.5%
Western region	0.000066	33.2%
Hispanics	0.000072	36.2%
Non-hispanic whites	0.000067	33.5%
Non-hispanic blacks	0.000105	52.5%
Non-hisp/non-white/non-black	0.000071	35.6%
All infants (< 1 year)	0.000066	32.9%
Nursing infants	0.000025	12.3%
Non-nursing infants	0.000081	40.7%
Children 1-6 yrs	0.000164	82.0%
Children 7-12 yrs	0.000094	46.9%
Females 13-19 (not preg or nursing)	0.000054	27.1%
Females 20+ (not preg or nursing)	0.000056	27.9%
Females 13-50 yrs	0.000055	27.5%
Females 13+ (preg/not nursing)	0.000058	29.0%
Females 13+ (nursing)	0.000061	30.3%
Males 13-19 yrs	0.000072	35.9%
Males 20+ yrs	0.000063	31.4%
Seniors 55+	0.000068	34.1%
Children 1-2 yrs	0.000190	95.2%
Children 3-5 yrs	0.000157	78.3%
Children 6-12 yrs	0.000100	49.9%
Youth 13-19 yrs	0.000063	31.6%
Adults 20-49 yrs	0.000056	28.2%
Adults 50+ yrs	0.000064	32.0%
Females 13-49 yrs	0.000051	25.7%

Fipronil

Aggregate Dietary Exposure Assessment

DP No.: D368732

ATTACHMENT 5

U.S. Environmental Protection Agency
 DEEM-FCID Chronic analysis for FIPRONIL
 Residue file name: C:\Documents and Settings\PSAVOIA\My Documents\Fipronil\Fipronil
 Deem\129121Chronic.R98

Ver. 2.00
 (1994-98 data)

Adjustment factor #2 used.

Analysis Date 08-06-2009/11:24:54 Residue file dated: 08-06-2009/09:55:38/8

Reference dose (RfD, Chronic) = .0002 mg/kg bw/day

COMMENT 1: Partially refined chronic dietary analysis to support establishing an import tolerance on rice based treated anticipated residue levels on all uses which includes drinking water.

=====

Critical Commodity Contribution Analysis for
 Children 1-2 yrs

Total Exposure = .0001738 mg/kg bw/day

Crop groups with total exposure contribution > 5%

Foods/Foodforms with exposure contribution > 3%

Crop group	-----Exposure Analysis-----		
Food Foodform	mg/kg body wt/day	% of Total Exposure	Percent of RfD

Crop Group = (O) Other			
Water, direct, all sources (86010000):			
FoodForm N/S	0.0000059	3.41%	2.96%

Total for crop group	0.0000100	5.73%	4.98%

Crop Group = (M) Meat			
Beef, meat (21000440):			
FoodForm N/S	0.0000076	4.36%	3.79%
Beef, fat (21000470):			
FoodForm N/S	0.0000188	10.83%	9.41%

Total for crop group	0.0000277	15.94%	13.85%

Crop Group = (D) Dairy Products			
Milk, fat (27002220):			
FoodForm N/S	0.0000863	49.64%	43.14%

Total for crop group	0.0000864	49.69%	43.18%

Crop Group = (1) Root and Tuber Vegetables			
Potato, tuber, w/o peel (01033000):			
FoodForm N/S	0.0000074	4.23%	3.68%

Total for crop group	0.0000117	6.72%	5.84%

Crop Group = (1C) Tuberous and Corm Vegetables			
Potato, tuber, w/o peel (01033000):			
FoodForm N/S	0.0000074	4.23%	3.68%

Total for crop group	0.0000094	5.42%	4.71%

Fipronil

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Crop group	-----Exposure Analysis-----		
Food	mg/kg	% of Total	Percent
Foodform	body wt/day	Exposure	of RfD

Crop Group = (5) Brassica (Cole) Leafy Vegetables			
Turnip, greens (05023890):			
FoodForm N/S	0.0000121	6.94%	6.04%

Total for crop group	0.0000121	6.94%	6.04%
Crop Group = (5B) Brassica: Leafy Greens			
Turnip, greens (05023890):			
FoodForm N/S	0.0000121	6.94%	6.04%

Total for crop group	0.0000121	6.94%	6.04%
Crop Group = (15) Cereal Grains			
Wheat, flour (15004020):			
FoodForm N/S	0.0000183	10.55%	9.17%

Total for crop group	0.0000229	13.18%	11.45%
Total for crop groups listed above:	0.0001707	98.20%	85.3%

Fipronil

Aggregate Dietary Exposure Assessment

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ATTACHMENT 6

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C., 20460

JUL 23 2009

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCESMEMORANDUM**SUBJECT:** Usage Report Package in Support of Registration for the Insecticide
Fipronil (129121)**FROM:** Arthur H. Grube, Senior Economist *Arthur for A.G.*
Economic Analysis Branch
Biological and Economic Analysis Division (7503P)**TO:** William H. Donovan, Chemist
Reregistration Branch 4/HED
Health Effects Division (7509P)

This memorandum transmits the Usage report for Fipronil. The data included in this memorandum were reviewed by Jenna Carter, Botanist. This report can be written in various formats (MS Word, Excel, Adobe Acrobat). It is advisable to open or save each report to view or print from the appropriate program.

For questions, comments and other usage or label use information requests, please contact me at (703) 308-8095. Other requests for information may be addressed to **OPP Usage and Label Use Team**, our group e-mail address in Lotus Notes.

The **Usage** report electronically-transmitted through Lotus Notes links includes:
Screening Level Usage Analysis (SLUA)

cc: Bonaventure Akinlosotu
David Brassard

FIPRONIL (129121)
Screening Level Usage Analysis (SLUA)
Date: July 22, 2009

What is a Screening Level Usage Analysis (SLUA)?

- Available estimates of pesticide usage data for a particular active ingredient that is used on **agricultural** crops in the United States.
- Pesticide usage data obtained from various sources. The data are then merged, averaged, and rounded so that the presented information is not proprietary, business confidential, or trade secret.

What does it contain?

- Pesticide usage data for a **single** active ingredient only.
- Agricultural use sites (crops) that the pesticide is *reported* to be used on.
- Available pesticide usage information from U.S. states that produce 80% or more of a crop, in most cases, or less than 80%, in rare cases, depending on the scope of the survey and available resources.
- Annual percent of crop treated (**average & maximum**) for each agricultural crop.
- Average annual pounds of the pesticide applied for each agricultural crop (i.e., for the states surveyed, not for the entire United States).

What assumptions can I make about the reported data?

- **Average pounds of active ingredient applied** - Values are calculated by merging pesticide usage data sources together; averaging across all observations, then rounding. *Note: If the estimated value is less than 500, then that value is labeled <500. Estimated values between 500 & <1,000,000 are rounded to 1 significant digit. Estimated values of 1,000,000 or greater are rounded to 2 significant digits.)*
- **Average percent of crop treated** - Values are calculated by merging data sources together; averaging by year, averaging across all years, & rounding to the nearest multiple of 5. *Note: If the estimated value is less than 1, then the value is labeled <1.*
- **Maximum percent of crop treated** - Value is the single maximum value reported across all data sources, across all years, & rounded up to the nearest multiple of 5. *Note: If the estimated value is less than 2.5, then the value is labeled <2.5.*

What are the data sources used?

- **USDA-NASS** (United States Department of Agriculture's National Agricultural Statistics Service) – pesticide usage data from 2001 to 2007.
- **Private pesticide market research** – pesticide usage data from 2001 to 2007.
- **NPUD 2002** (National Pesticide Use Database) pesticide usage data from NPUD 02 of the CropLife Foundation are used *only* if data are not available from the other sources.
- **California Department of Pesticide Regulation (DPR) Pesticide Use Reporting (PUR)** data for 2000 to 2005 when 95% or more of a crop is grown California.

What are the limitations to the data?

- Additional registered uses may exist but are not included because the available surveys do not report usage (e.g., small acreage crops).
- Lack of reported usage data for the pesticide on a crop **does not imply** zero usage.
- Usage data on a particular site may be noted in data sources, but **not quantified**. In these instances, the site would not be reported in the SLUA.
- Non-agricultural use sites (e.g., turf, post-harvest, mosquito control, etc.) are not reported in the SLUA. A separate request must be made to receive these estimates.
- Some sites show some use, even though they are not on the label. This usage could be due to various factors, including, but not limited to Section 18 requests, existing stocks of the chemical, data collection errors, and experimental use permits (EUPs).

Fipronil

Aggregate Dietary Exposure Assessment

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July 22, 2009
Screening Level Estimates of Agricultural Uses of FIPRONIL (129121)
Sorted Alphabetically

	Crop	Lbs. A.I.	Percent Crop Ttd. Avg.	Max
1	Corn	200,000	<2.5	5
2	Sweet Corn	<500	<1	<2.5

All numbers rounded.

'<500' indicates less than 500 pounds of active ingredient.

'<2.5' indicates less than 2.5 percent of crop is treated.

'<1' indicates less than 1 percent of crop is treated.

SLUA data sources include:

USDA-NASS (United States Department of Agriculture's National Agricultural Statistics Service);
 Private Pesticide Market Research,

NCFAP 97 (National Center for Food and Agricultural Policy),

NPUD 2002 (National Pesticide Use Database) of the CropLife America Foundation and California DPR data.

These results reflect amalgamated data developed by the Agency and are releasable to the public.

Fipronil

Aggregate Dietary Exposure Assessment

DP No.: D368732



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460**

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Usage Report/Package in Support of Registration/Reregistration for Insecticide Fipronil (PC 129121)

FROM: Arthur Grube
Economic Analysis Branch
Biological and Economic Analysis Division (7503C)

David Brassard
Biological Analysis Branch
Biological and Economic Analysis Division (7503C)

THRU: Diann Sims, Branch Chief
Science Information & Analysis Branch
Biological and Economic Analysis Division (7503C)

Arnet Jones, Branch Chief
Biological Analysis Branch
Biological and Economic Analysis Division (7503C)

TO: William Donovan
Registration Action Branch 3
Health Effects Division (7509C)

I. SUMMARY

This memorandum provides projected percent crop treated (PPCT) values for fipronil use on potatoes; and provides corresponding Federal Register (FR) language. BEAD has examined all relevant data and concludes that it is unlikely that the actual percent crop treated (PCT) with fipronil will exceed the PPCT values listed for all of these crops within the next five years due to the likelihood that it will share the market with the current market leader.

II. Specific PPCT Request

BEAD is providing, at the request of the Health effects Division (HED), updated projected percent crop treated (PPCT) values for a new use of fipronil on potatoes.

III. FEDERAL REGISTER LANGUAGE

The market leader approach is used with all of the above mentioned crops. EPA estimates projected percent crop treated (PPCT) for a new pesticide use by assuming that the percent crop treated (PCT) during the pesticide's initial five years of use on a specific use site will not exceed the average PCT of the market leader (i.e., the one pesticide with the greatest PCT) on that site.

Typically, EPA uses USDA/NASS as the primary source for PCT data. When a specific use site is not surveyed by USDA/NASS, EPA uses other sources, including proprietary data, to calculate the PCT. Comparisons are only made among pesticides of the same pesticide types (e.g., the leading insecticide on the use site is selected for comparison with the new insecticide).

For this analysis, USDA/NASS data are used for potatoes. The PPCT values included in the chronic column (Table 1) are derived from averaging the most recent PCT values [USDA/NASS Data (03, 05, and 07) and CA Data (04, 05, and 06)]. The market leader across years may be the same or different pesticide depending on which chemical dominates the market for each year selected. The acute PPCT values (Table 1) are the highest value of the available values used for the chronic PPCT values. This PPCT, based on the average PCT of the market leader, is appropriate for use in chronic dietary risk assessment. The method of estimating a PPCT for a new use of a registered pesticide or a new pesticide produces a high-end estimate that is unlikely, in most cases, to be exceeded during the initial five years of actual use.

The predominant factors that bear on whether the estimated PPCT could be exceeded are whether a new pesticide use or a new pesticide is more efficacious or controls a broader spectrum of pests than the dominant pesticide. Other concerns are that increasing pest pressure may intensify the use of pesticides as indicated in emergency exemption requests or other readily available information.

BEAD has examined all relevant data and concludes that it is unlikely that fipronil's actual percent crop treated (PCT) will exceed the PPCT values within the next five years for this crop. The values to be used in risk analysis, for the new uses and updated PPCTs, are presented in Table 1. Average PCT will be used for chronic assessment, and maximum PCT will be used for acute analysis. See confidential appendix A for a breakdown of individual years.

Table 1. New PPCT Values to Be Used in Risk Assessment

Crop	Chronic PPCT/Average	Acute PPCT/Maximum
Potatoes	43	50

V. ADDITIONAL FACTORS

The predominant factors that bear on whether the estimated PPCT could be exceeded are whether a new pesticide use or a new pesticide is more efficacious or controls a broader spectrum of pests than the dominant pesticide. Other concerns are increasing pest pressure, as indicated in emergency exemption requests or other readily available information.

Fipronil and imidacloprid have a similar spectrum of pest control and are both systemic in action. It is likely that fipronil will replace imidacloprid on about half of the acreage currently treated with imidacloprid. BEAD has examined all relevant data and concludes that it is unlikely that the actual percent crop treated (PCT) with fipronil will exceed the PPCT values listed for all of these crops within the next five years due to the likelihood that it will share the market with the current market leader.

VI. CONCLUSIONS/RECOMMENDATIONS

BEAD recommends that the average PPCT values given in Tables 1 be used in the chronic dietary risk assessment for fipronil and the maximum PPCT's be used for acute risk assessment. BEAD has considered all available relevant information and believes it is unlikely that the above PPCT values will be exceeded during the next five years for potatoes.

VII. REFERENCES

Agricultural Chemical Usage 2002 Vegetables Summary, July 2003

Agricultural Chemical Usage 2004 Vegetables Summary, July 2005

EPA Proprietary Data, 2008

Fipronil

Aggregate Dietary Exposure Assessment

DP No.: D368732

Fw: US rice imports are 15% of the domestic market
 William Donovan
 to:
 Pete Savoia
 07/22/2009 08:55 AM
 Show Details

Peter,

Use 15% for rice. Thanks,

Will

----- Forwarded by William Donovan/DC/USEPA/US on 07/22/2009 08:54 AM -----
 From: David Brassard/DC/USEPA/US
 To: William Donovan/DC/USEPA/US@EPA
 Cc: Bonaventure Akinlosotu/DC/USEPA/US@EPA, Jack Arthur/DC/USEPA/US@EPA,
 Arnet Jones/DC/USEPA/US, Jenna Carter/DC/USEPA/US@EPA, Angel
 Chiri/DC/USEPA/US@EPA
 Date: 07/21/2009 03:36 PM
 Subject: US rice imports are 15% of the domestic market

Here are the websites I consulted. I converted the relevant portions of these websites to .pdf format (attached)

<http://www.ers.usda.gov/Briefing/Rice/trade.htm>

U.S. rice imports have been increasing in the last few decades, from about 4 percent of the domestic market in the second-half of the 1980s to 15 percent by the mid-2000s. Most U.S. rice imports are aromatic varieties from Asia—jasmine from Thailand and basmati from India and Pakistan.

<http://www.fas.usda.gov/grain/circular/2008/12-08/grainfull12-08.pdf>

2009 US rice imports are 11 percent lower than expected based on slower than expected purchases of fragrant rice.

http://www.nass.usda.gov/Publications/Ag_Statistics/2008/Chap01.pdf

David W. Brassard, Senior Entomologist
 Potomac Yard South Room S-9337
 Biological Analysis Branch
 Biological and Economic Analysis Division
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 1200 Pennsylvania Ave., NW
 Washington, DC 20460-0001
 Phone: 703-308-8104
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brassard.david@epa.gov

Fipronil

Aggregate Dietary Exposure Assessment

DP No.: D368732

From: Arnet Jones/DC/USEPA/US
 To: William Donovan/DC/USEPA/US@EPA, Jack Arthur/DC/USEPA/US@EPA
 Cc: David Brassard/DC/USEPA/US@EPA, Bonaventure Akinlosotu/DC/USEPA/US@EPA
 Date: 07/20/2009 02:36 PM
 Subject: Fw: Fipronil/imported rice questions (and other pct crop treated info needed by HED)

Pls see note below - maybe Bonaventure already sent it. Please keep Dave Brassard in the email traffic on this.

Thanks.

Skee Jones

----- Forwarded by Arnet Jones/DC/USEPA/US on 07/20/2009 02:34 PM -----

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 Date: 07/15/2009 02:26 PM
 Subject: Re: Fw: Fipronil/imported rice questions (and other pct crop treated info needed by HED)

Of all the crops with PCT estimates, only corn is a section 3 registration. The U.S. rice use was voluntarily cancelled 5 years ago. Fipronil seed treatments on onion, rutabaga, and turnip have been requested/issued in 2007+2008 and potato seed piece treatment was requested in 2004 but did not receive a favorable BEAD review. Onions and sweet potatoes are pending sec 3 uses.

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